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HP 8923B DECT Test Set

Users Guide

HP Part No. 08923-90034
Printed in UK
13/2/96

Tuesday, February 13, 1996

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Caution The *caution* sign denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in damage to or destruction of the instrument. Do not proceed beyond a *caution* sign until the indicated conditions are fully understood and met.

Note **The *warning* sign denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in injury or loss of life. Do not proceed beyond a *warning* sign until the indicated conditions are fully understood and met.**

Personal Safety Considerations

Warning **This is a Safety Class I product (provided with a protective earthing ground incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor, inside or outside the instrument, is likely to make the instrument dangerous. Intentional interruption is prohibited.**

Whenever it is likely that the protection has been impaired, the instrument must be made inoperative and be secured against any unintended operation.

No operator serviceable parts inside. Refer servicing to qualified personnel. To prevent electrical shock, do not remove covers.

For continued protection against fire hazard, replace the line fuse(s) only with fuses of the same type and rating (for example, normal blow, time delay, etc.). The use of other fuses or material is prohibited.

Warning **The HP 8923B weighs 32 kg (70lbs). Two people or a mechanical aid are recommended for lifting the HP 8923B.**

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General Safety Considerations

Warning

Before this instrument is switched on, make sure it has been properly grounded through the protective conductor of the ac power cable to a socket outlet provided with protective earth contact.
Any interruption of the protective (grounding) conductor, inside or outside the instrument, or disconnection of the protective earth terminal can result in personal injury.

Caution

Any adjustments or service procedures that require operation of the instrument with protective covers removed should be performed only by trained service personnel.

Caution

Before this instrument is switched on, check that the line voltage setting on the rear panel power line module is set to the voltage of the ac power source.
Failure to set the ac power input to the correct voltage could cause damage to the instrument when the ac power cable is plugged in.

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Regulatory Information

Sound Emission

Herstellerbescheinigung

Diese Information steht im Zusammenhang mit den Anforderungen der schinenlarminformationsverordnung vom 18 Januar 1991.

- Sound Pressure LpA < 70 dB.
- Am Arbeitsplatz.
- Normaler Betrieb.
- Nach DIN 45635 T. 19 (Typprufung).

Manufacturers Declaration

This statement is provided to comply with the requirements of the German Sound DIN 45635 T. 19 (Typprufung).

- Sound Pressure LpA < 70 dB.
- At operator position.
- Normal operation.
- According to ISO 7779 (Type Test).

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Declaration of Conformity

DECLARATION OF CONFORMITY
according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name:	Hewlett-Packard Limited.
Manufacturer's Address:	Queensferry Microwave Division South Queensferry, West Lothian, EH30 9TG. Scotland, United Kingdom.

Declares that the product:

Product Name:	DECT Test Set
Model Number(s):	HP 8923B
Product Option(s):	This Declaration covers all options of the above product.

Conforms to the following Product Specifications:

Safety :	IEC 348:1978 CSA-C22.2 No. 231 (Series M-89)
EMC :	EN 55011 : 1991, Group 1, Class A EN 50082-1 : 1992

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC.

South Queensferry, Scotland	12th Feb 1996	R M Evans
Location	**Date**	R M Evans / Quality Manager

European Contact:

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1 800 452 4844

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Portugal: (11) 301 73 30

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A. Logging MAC Layer Test Messages

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1

About this Manual

What you will learn in this Chapter

- What documentation is available for the HP 8923B DECT Test Set.
- What conventions are used in this manual.

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Introduction

Welcome to the *HP 8923B User's Manual.*

This manual is divided into the following sections:

Getting Started Chapters 1 and 2 will show you how to prepare the HP 8923B for use and introduce you to the HP 8923B and its features.

Chapters 3, 4 and 5 will show you how to prepare the the HP 8923B for making measurements and provide a reference of keys, screens, softkeys and fields that are displayed on the HP 8923B.

Performance Chapters 6, 7, 8, 9 and 10 will provide you with details of specifications, performance, confidence checks and error messages for the HP 8923B DECT Test Set.

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Other HP 8923B Documentation

In addition to this User's Manual, there are two other learnware packages which will help you learn about the HP 8923B:

HP 8923B Programming Reference Manual

Provides information on the commands used when controlling the HP 8923B via the remote interface.

HP 8923B Quick Start Guide

Briefly tells you how to make measurements and includes information on DECT.

HP 8923B Service Guide

Briefly tells you how to make measurements and includes information on DECT.

Documentation Options

Option 0BF	Additional copy of the Programming Reference Manual.
Option 0B3	Additional copy of the User's Manual.
Option AV4	HP 8923B Service Manual. This guide provides you with service information such as trouble shooting, block diagrams, and replaceable parts.

How to Order Manuals

Each manual can be ordered individually from your local HP Sales and Service Office.

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Before You Begin

It is recommended that you familiarize yourself with the conventions before you begin using your HP 8923B.

Naming Conventions

This guide uses the following conventions:

(Front-Panel Key) ..... A boxed name in this typeface represents a key physically located on the instrument front panel.

`Softkey` ..... A boxed word written in this typeface indicates a "softkey," a key whose label is determined by the instrument's firmware. Softkeys only appear on the right hand side of the screen.

`Screen Text` ..... Text printed in this typeface indicates other text displayed on the screen.

Connector ..... Text printed in this typeface refers to a physical connector located on the front or rear panel of the instrument.

Specific DECT Conventions

A-Field ..... The DECT burst can be split into several "Fields". The A-Field is a subset of the D-Field and contains signalling data.

B-Field ..... The DECT burst can be split into several "Fields". The B-Field is a subset of the D-Field and contains the information which is being transferred.

Dummy Bearer ..... A short simplex bearer operating in one direction only. The bearer shall always occupy the same RF carrier and the same slot of the TDMA frame.

ETS ..... European Telecommunications Standard.

EUT ..... Equipment Under Test.

FMID ..... Fixed Part MAC Identifier.

FP ..... Fixed Part.

LT ..... Lower Tester.

MAC ..... Medium Access Control layer.

PARI ..... Primary Access Rights Identifier.

Physical Channel ..... Simplex channel that is created by transmitting in one particular slot, on one particular RF channel, in successive TDMA frames.

PMID ..... Portable Part MAC Identifier.

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PP. . . . . Portable Part.

p0 . . . . . This is the first bit of the S-Field, synchronization is referenced to this bit.

RFP . . . . . Radio Fixed Part.

S-Field . . . . . The DECT burst can be split into several "Fields". The S-Field is the initial thirty-two bits and contains a synchronization word.

TDMA . . . . . Time Division Multiple Access.

Traffic Bearer . . . . . The use of two simplex bearers operating in opposite directions or a duplex bearer on two physical channels. These pairs of channels always use the same RF carrier and use evenly spaced slots (separated by half a TDMA frame).

Z-field . . . . . The DECT burst can be split into several "Fields". The Z-Field is optional, four bits in length and used for error detection.

See Appendix B, "Composition of RFPI" for more information on DECT signalling.

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2

Preparing Your HP 8923B For Use

What You'll Learn in this Chapter

This chapter describes the process of configuring the HP 8923B DECT Test Set for use. This chapter describes how to:

- Perform an initial inspection.
- Select the appropriate a.c. power source and fuse.
- Connect the power cable.
- Power up your HP 8923B DECT Test Set.
- Get acquainted with Front and Rear panel connectors.
- Connect and configure external equipment.

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2.1 Performing an Initial Inspection

Inspect the shipping container for damage. If the shipping container or cushioning material is damaged, keep it until you have verified that the contents are complete and you have tested the HP 8923B DECT Test Set mechanically and electrically. If the HP 8923B DECT Test Set does not pass the power up self tests, notify the nearest Hewlett-Packard office. Table 2-1 contains the accessories shipped with the HP 8923B DECT Test Set. If the contents are incomplete, notify the nearest Hewlett-Packard office. If the shipping container is damaged or the cushioning material shows signs of stress, also notify the carrier. Keep the shipping materials for the carrier's inspection. The HP office will arrange for repair or replacement without waiting for a claim settlement.

Note

Complete instructions for installing your HP 8923B DECT Test Set in an equipment rack are provided in a service note that is included with Option 1CP (Rack Mount and Handle Kit.)

Table 2-1.
Accessories Supplied with the HP 8923B DECT Test Set

Description	HP Part Number
Power Cable	See Table 2-2.
Reference Connector	1250-1499
Documentation: HP 8923B User's Guide HP 8923B Programming Reference Guide HP 8923B Quick Start Guide	 08923-90034 08923-90037 08923-90036

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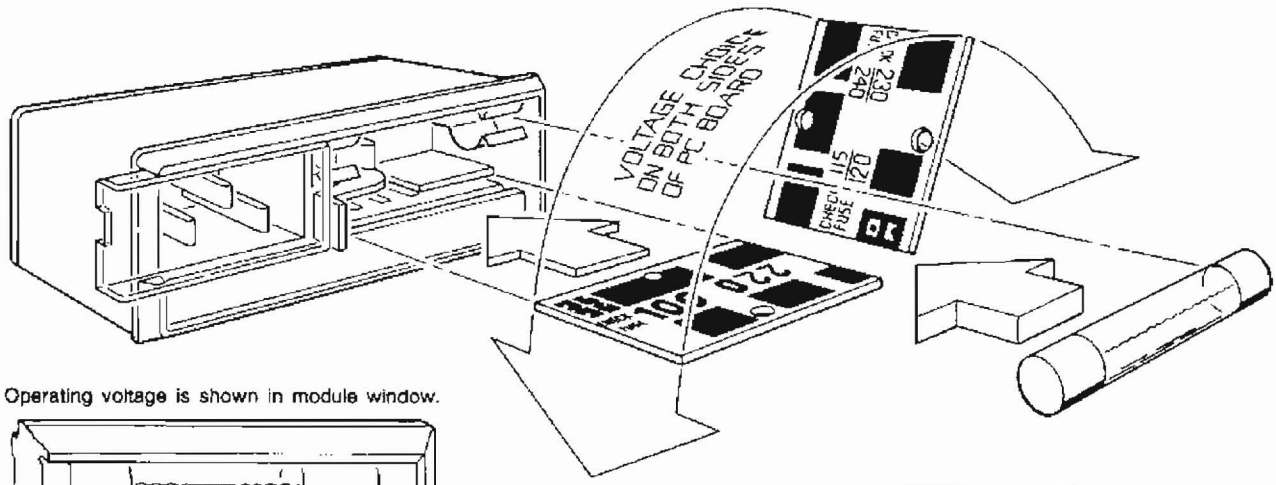
2.2 Line Voltage and Fuse Selection

Caution Before connecting the HP 8923B DECT Test Set to a power source, you must set the rear-panel voltage selector switch correctly to match the operating voltage of your environment. An improper selector switch setting can damage the HP 8923B DECT Test Set.

Line Voltage Selection



WARNING

To avoid the possibility of hazardous electrical shock, do not operate this instrument at line voltages greater than 126.5 Vac with line frequencies greater than 66 Hz (leakage currents at these line settings may exceed 3.5 mA).

1. Open cover door, pull the FUSE PULL lever and rotate to left. Remove the fuse.
2. Remove the Line Voltage Selection Card. Position the card so the line voltage appears at top-left cover. Push the card firmly into the slot.
3. Rotate the Fuse Pull lever to its normal position. Insert a fuse of the correct value in the holder. Close the cover door.

Figure 2-1. Voltage Selection Card and Fuse Installation

Fuse Selection

The recommended fuse size is 5 mm by 20 mm. For 240V operation use HP part number 2110 -0083 rated 2.5A, 250 V (IEC approved).
For 120V operation use, 2110-0010, rated 5.0A, 250V (IEC approved).

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2.3 Connecting the Power Cable

The HP 8923B DECT Test Set is equipped with a three-wire power cable, in accordance with international safety standards. When connected to an appropriate power line outlet, this cable grounds the instrument cabinet.

Warning

Failure to ground the HP 8923B DECT Test Set properly can result in personal injury. Before turning on the HP 8923B DECT Test Set, you must connect its protective earth terminals to the protective conductor of the main power cable. Insert the main power cable plug only into a socket outlet that has a protective earth contact. DO NOT defeat the earth-grounding protection by using an extension cable, power cable, or autotransformer without a protective ground conductor. If you are using an autotransformer, make sure its common terminal is connected to the protective earth contact of the power source outlet socket.

Various power cables are available to connect the HP 8923B DECT Test Set to the types of a.c power outlets unique to specific geographic areas. The cable appropriate for the area to which the HP 8923B DECT Test Set is originally shipped is included with the unit. You can order additional a.c. power cables for use in different areas. Table 2-2 lists the available a.c. power cables, illustrates the plug configurations, and identifies the geographic area in which each cable is appropriate.

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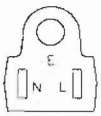
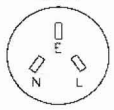
Table 2-2. AC Power Cables Available

PLUG TYPE **	CABLE HP PART NUMBER	PLUG DESCRIPTION	CABLE LENGTH CM (INCHES)	CABLE COLOR	FOR USE IN COUNTRY
	8120-1351 8120-1703	Straight* BS1363A 90°	229 (90) 229 (90)	Mint Gray Mint Gray	Great Britain, Cyprus, Nigeria, Singapore, Zimbabwe
	8120-1369 8120-0696	Straight* NZSS198/ASC112 90°	201 (79) 221 (87)	Gray Gray	Argentina, Australia, New Zealand, Mainland China
	8120-1689 8120-1692	Straight* CEE7-Y11 90°	201 (79) 201 (79)	Mint Gray Mint Gray	East and West Europe, Central African Republic, United Arab Republic (unpolarized in many nations)
	8120-1348 8120-1538	Straight* NEMA5-15P 90°	203 (80) 203 (80)	Black Black	United States, Canada, Taiwan, Japan (100 V or 200 V), Brazil, Colombia, Mexico, Philippines, Saudia Arabia, Korea (100 V)
	8120-1378 8120-4753 8120-1521 8120-4754	Straight* NEMA5-15P Straight 90° 90°	203 (80) 230 (90) 203 (80) 230 (90)	Jade Gray Jade Gray Jade Gray Jade Gray	
	8120-5182 8120-5181	Straight* NEMA5-15P 90°	200 (78) 200 (78)	Jade Gray Jade Gray	Israel

* Part number for plug is industry identifier for plug only. Number shown for cable is HP Part Number for complete cable, including plug.

** E = Earth Ground; L = Line; N = Neutral.

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2.4 Switching On Your HP 8923B DECT Test Set

Perform the following:

Press (POWER) on the front panel.

After a few seconds, the screen displays `HP 8923 DECT Test Set`.

A few seconds later, the start up screen is displayed. (See Figure 2-2)

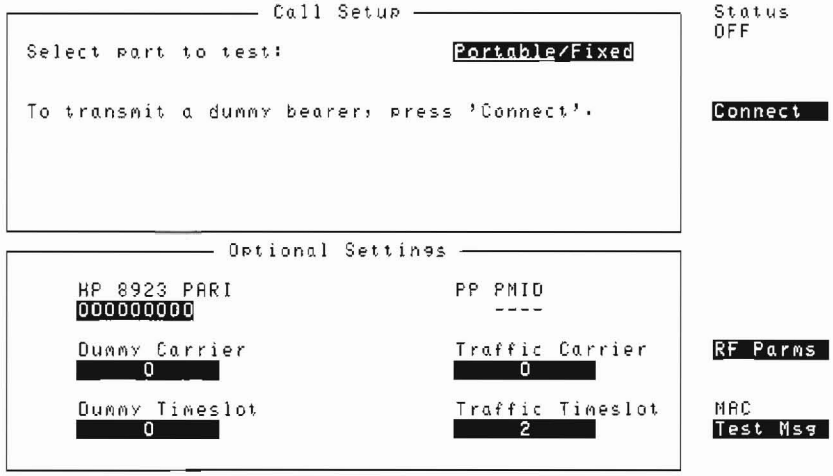

Figure 2-2. Start up screen

If your instrument fails to power up, check that the fuse is correctly installed and the correct voltage is chosen. If the instrument is still not working, contact your local or nearest HP Sales and Service Office. These are included in a table at the front of this manual.

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2.5 Configuration (optional after switching on)

The CONFIGURATION screen contains a number of settings that are used to alter instrument operation and hardware communications settings. Table 2-3 shows the parameters that you can change to suit your needs.

Table 2-3. Default Configuration Settings

Parameter	Default Setting	Alternative Settings
Display intensity	7	1-8
Beeper volume	Quiet	Off, Loud
Save/Recall	Internal	Card, RAM, ROM, Disk
Multiframe Sync.	Master	Slave
HP-IB address	14	0-30
Mode	Talk & Lstn	Control
System date	Real time clock[1]	User input[2]
System time	Real time clock[1]	User input[3]

1 Setting will be that of when the hardware was installed.
2 Input current date when setting.
3 Input current time when setting.

These parameters are described in more detail in Chapter 5, "Fields, Screens, Keys And Softkeys", see "Configuration Screen (Front Panel accessed)", on page 5-22.

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2.6 Front and Rear Panel Connectors

Front Panel Connectors

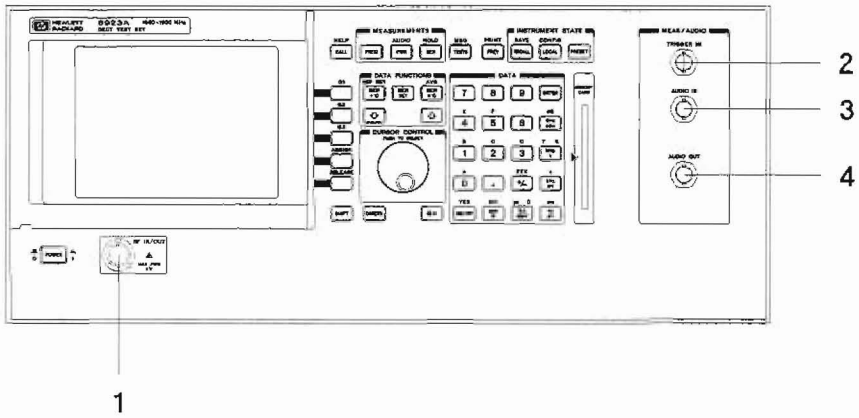

Figure 2-3. Front Panel Connectors

1. RF IN/OUT

Connector Type:	Type-N Connector
Impedance:	50 Ω
Max. Reverse Power Protection:	2 W continuous
VSWR:	1.5 : 1 Max.
Function:	This connector allows an RF connection to the EUT.

2. TRIGGER IN

Connector Type:	BNC
Input Impedance:	Typically 2-3 kΩ
Function:	This connector accepts an external TTL trigger signal.

3. AUDIO IN

Connector Type:	BNC
Input Impedance:	>10 kΩ for frequencies < 50 kHz
Function:	This connector is used as an input to the oscilloscope/voltmeter.

4. AUDIO OUT

Connector Type:	BNC
Output Impedance:	60-70 Ω
Function:	Provides a variable amplitude (0-2 V pk-pk), variable frequency (20 Hz to 21 kHz) sinusoidal audio signal.

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Rear Panel Connectors

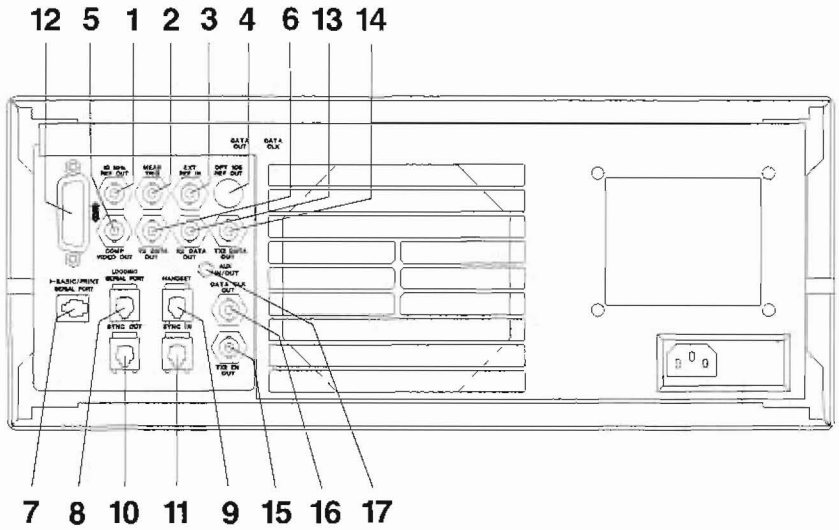

Figure 2-4. Rear Panel Connectors

1. 10 MHz REF OUT

Connector Type:	BNC
Output Impedance:	50 Ω
Function:	Provides an output from the internal frequency reference.

2. MEAS TRIG

Connector Type:	BNC
Output Level:	TTL
Function:	Provides a trigger output derived from the selected trigger source.

3. EXT REF IN

Connector Type:	BNC
Input Impedance:	50 Ω
Function:	Allows the connection of an external 10 MHz high stability frequency reference. The 10 MHz REF OUT may be connected instead of an external reference.

4. OPT 1D5 REF OUT

Connector Type:	BNC
Output Impedance:	50 Ω
Function:	Provides an output from the high stability frequency reference (option 1D5).

5. COMP VIDEO OUT

Connector Type:	BNC
Output Impedance:	75 Ω
Function:	Provides a PAL compatible 15.625 kHz scan rate video signal to drive an external PAL monitor.

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6. TX DATA OUT

Connector Type:	BNC
Output Level:	TTL
Function:	The output from this port is the Baseband data which is modulated onto the HP 8923B internal RF source.

7. IBASIC/PRINT SERIAL PORT

Connector Type:	RS-232 (RJ-11)
Function:	Allows serial data transfer to a serial printer or terminal. Baud Rates: 300, 1200, 2400, 4800 and 9600.

8. LOGGING SERIAL PORT

Connector Type:	RS-232 (RJ-45)
Function:	This port is used to extract a summary of the logged protocol to an external controller or terminal. Baud Rates: 300, 1200, 9600 and 19200.

9. HANDSET

Connector Type:	RS-232 (RJ-45)
Input Impedance:	200 kΩ
Sensitivity:	12 $mV_{r.m.s}$ (Typical) Supplies 1.5V bias to drive an **ELECTRET** microphone.
Output:	110 Ω, 1 $V_{r.m.s}$ differential
Function:	Allows an external handset to be connected to the HP 8923B.

10. SYNC OUT

Connector Type:	RS-422 (RJ-45)
Function:	Provides an output to allow multiple HP 8923B's to be time synchronized during "over-the-air" testing.

11. SYNC IN

Connector Type:	RS-422 (RJ-45)
Function:	Provides an input to allow multiple HP 8923B's to be time synchronized during "over-the-air" testing.

12. HP-IB

Connector Type:	HP-IB
Function:	Allows instrument to be controlled via HP-IB conforming to IEEE 488.2 standard, or to act as a controller.

13. RX DATA OUT

Connector Type:	BNC
Output Level:	TTL
Function:	The output from this port is the Baseband data which is demodulated from the RF data received by the HP 8923B.

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14. TX2 DATA OUT

Connector Type:	BNC
Output Level:	TTL
Function:	The output from this port is the Baseband data which is selected on the HP 8923B external source screen.

15. TX2 EN OUT

Connector Type:	BNC
Output Impedance:	TTL
Function:	Provides a pulse signal which has a duration that corresponds to the length of the DECT timeslot chosen on the HP 8923B external source screen.

16. DATA CLK OUT

Connector Type:	BNC
Output Impedance:	TTL
Function:	Provides a clock output at the frequency of the transmitted data.

17. AUX IN/OUT

Connector Type:	SMA
Impedance:	50 Ω
Max. Reverse Power Protection:	2 W continuous
VSWR:	1.5 : 1 Max.
Function:	Allows connection of external test equipment for further analysis of the RF signals from the EUT.

Note The AUX IN/OUT connector **MUST** be terminated with a 50 Ω load when not in use.

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2.7 Connecting External Equipment

2.7.1 Serial Printer

Ensure the HP 8923B is switched off. Connect the printer to the HP 8923B as shown in Figure 2-5. Use an RS-232 cable with an RJ-11 type connection at one end.

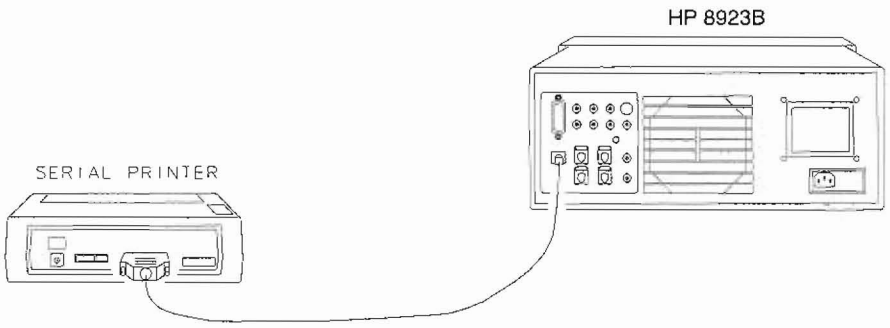
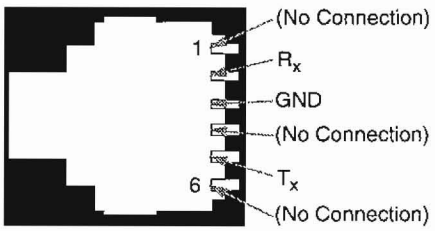


Figure 2-5. Connecting a Serial Printer

Note This cable is available as HP 8923B Option K06.

The interface of the **I-BASIC/PRINT SERIAL PORT** is shown below:

IBASIC/PRINT SERIAL PORT		
Pin Number	**Name**	**Connector**
1	No Connection	
2	Rx	
3	GND	
4	No Connection	
5	Tx	
6	No Connection	

When the printer has been connected, power it up.

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HP 8923B Configuration

- Switch on the HP 8923B.
- Access the configuration screen by pressing:
  - (SHIFT) then (LOCAL)
- Select `Serial` from the softkeys.
- Set the serial communication configuration to that of the printer.
- Select `Return` to return to the configuration screen.
- Select `Printer Config` .
- Set the `Model`: to the printer you have connected. The choices are:
  - HP Thinkjet
  - HP Quietjet
  - HP Paintjet
  - HP Deskjet
  - HP Laserjet
  - Epson FX-80
  - Epson LQ-850
- Set `Printer Port`: to Serial.

The HP 8923B is now ready to print data to the printer.

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2.7.2 HP-IB Printer

Ensure the HP 8923B is switched off. Connect the printer to the HP 8923B as shown in Figure 2-6.

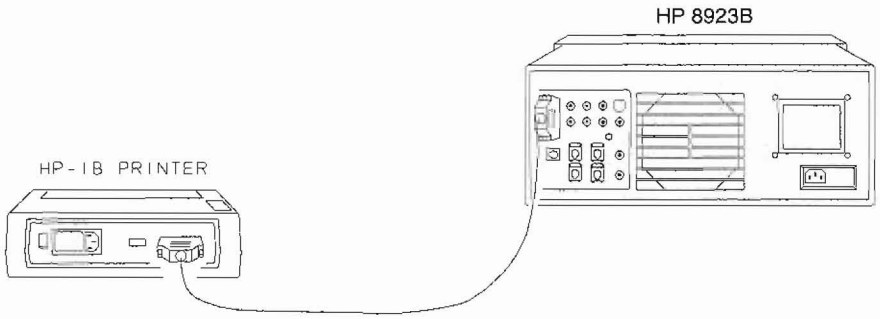

Figure 2-6. Connecting an HP-IB Printer

HP-IB is a standard type of connector and all cables comply with IEEE standard 488.2.

When the printer has been connected, power it up.

A centronics printer can also be connected provided you have the following accessories:

- ITEL-45CHVE: Microprint HP-IB/Centronics bus converter.
- HP F1011A: AC/DC Adapter.
- HP C2912B: 3m Centronics cable
- HP 10833D: 0.5m HP-IB cable.

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HP 8923B Configuration

- Switch on the HP 8923B.
- Access the configuration screen by pressing:
  - (SHIFT) then (LOCAL)
- Select `Mode`.
- Set to `Control` .
- Select `Printer` : `Config` .
- Set the `Model`: to the printer you have connected. The choices are:
  - Thinkjet
  - Quietjet
  - Paintjet
  - Deskjet
  - Laserjet
  - FX-80
  - LQ-850
- Set `Printer Port`: to HP-IB.
- Set the `Printer Adrs` to the address for the printer. It can be an integer from 0-30.

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2.7.3 Terminal (Logging Protocol)

Ensure the HP 8923B is switched off. Connect the terminal to the HP 8923B as shown in Figure 2-7. Use a shielded RS-232 cable with an RJ-45 type connection at one end. This cable is available as HP 8923B Option K06.

The RJ-45 socket is compatible with RJ-11 type connectors.

Note

The terminal could be a PC running using the terminal option in the windows environment.

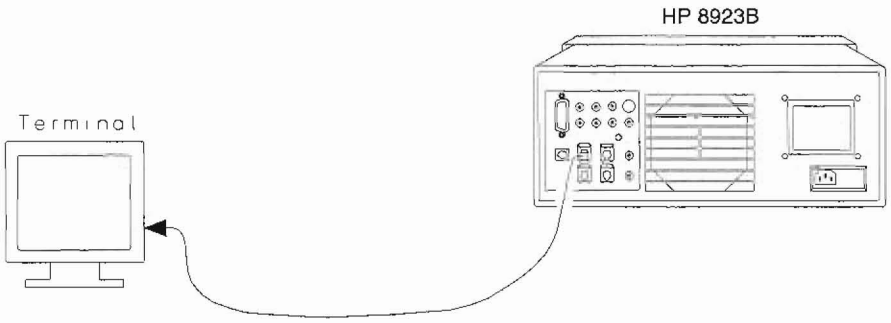
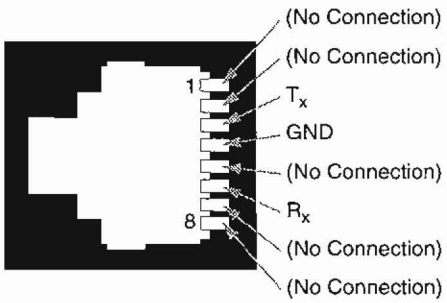


Figure 2-7. Connecting a Terminal (Logging)

The internal connections of the **LOGGING SERIAL PORT** is shown below:

LOGGING SERIAL PORT		
Pin Number	**Name**	**Connector**
1	No Connection	
2	No Connection	
3	Tx	
4	GND	
5	No Connection	
6	Rx	
7	No Connection	
8	No Connection	

When the terminal has been connected, power it up.

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HP 8923B Configuration

- Switch on the HP 8923B.
- Access the `DECT Protocol Logging` screen by pressing:
  - Call Setup
  - `MAC Test Msg`
  - `Logging`
  - Set the `Serial Baud` and `Handshake`.
  - Select `Logging On/Off` until `On` is underlined.
  - Select `Return` to return to the `MAC Test Msg` screen.
  - Select `Return` to return to the Call Setup screen.

The HP 8923B is now ready to transmit logged protocol to the terminal.

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2.7.4 External Disk Drive

Ensure the HP 8923B is switched off. Connect the disk drive to the HP 8923B as shown in Figure 2-8.

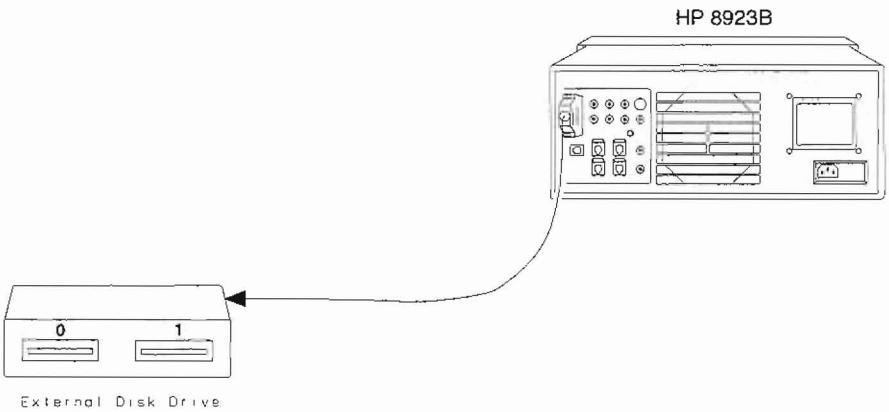

Figure 2-8. Connecting an External Disk Drive

When the drive is connected, power it up.

HP 8923B Configuration

- Switch on the HP 8923B.
- Access the configuration screen by pressing:
  - (SHIFT) then (LOCAL)
- Select `Mode`.
- Set to `Control` .
- Select `External Disk Specification`
- Enter address and which unit of the external drive you will be using. See `External Disk Specification` on the Configuration Screen in Chapter 5 for details.

The HP 8923B will now save and recall to this unit if the external disk drive is chosen as the media for saving/recalling information. This method of saving and recalling will take longer than saving to the other media.

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2.7.5 Synchronizing Multiple HP 8923B's

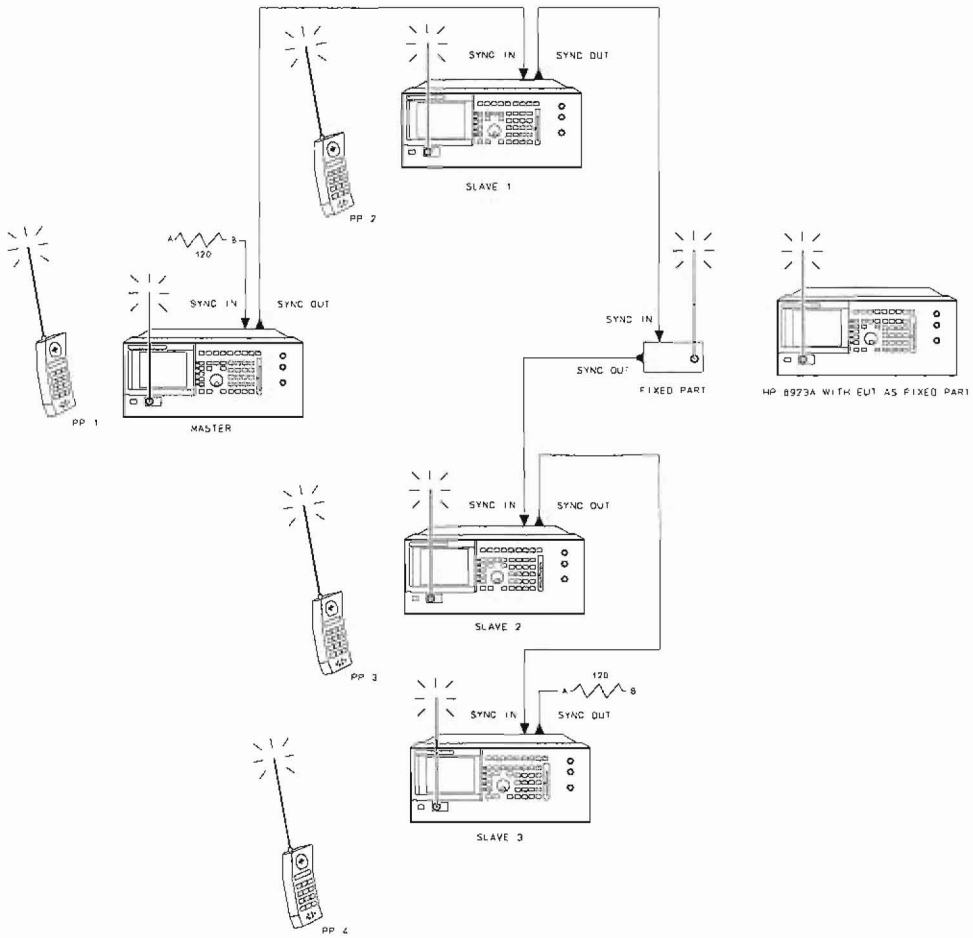

Figure 2-9. Example of Master/Slave Configuration

When testing DECT FPs or PPs "over-the-air" it is important to ensure that no interference occurs. Multiple HP 8923B's can be connected together to ensure that they are synchronized in time. When multiple HP 8923B's are connected together, one must be configured as a master and the others as slaves. Figure 2-9 is an example of a **MASTER AND SLAVE** setup. The HP 8923B has two ports: **SYNC IN** and **SYNC OUT** to allow slaves to be connected to the master. When testing a fixed part it may be synchronized with other HP 8923B's, providing that the fixed part has an interface that complies with ETS 300 175-3, Annex C. Any device complying with ETS 300 175-3, Annex C may be used instead of an HP 8923B as the **MASTER**.

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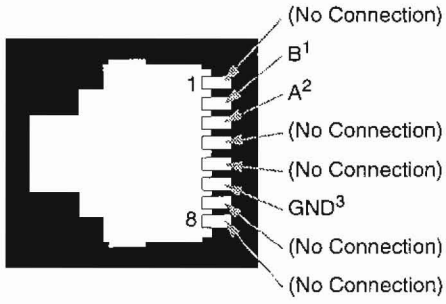
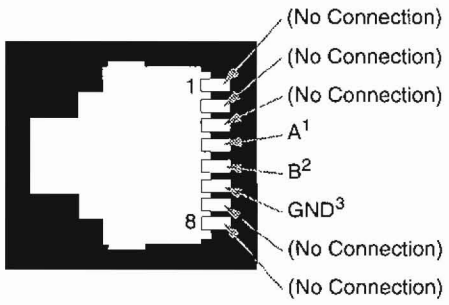
The interface of the ports are shown in the following tables:

SYNC OUT PORT		
Pin Number	**Name**	**Connector**
1	No Connection	
2	B[1]	
3	A[2]	
4	No Connection	
5	No Connection	
6	GND[3]	
7	No Connection	
8	No Connection	

1 B is a differential output in the synchronization circuitry. For cabling purposes, B of SYNC OUT connects to B of SYNC IN. A and B are opposite in polarity.
2 A is a differential output in the synchronization circuitry. For cabling purposes, A of SYNC OUT connects to A of SYNC IN.
3 For cabling purposes, GND of SYNC OUT connects to GND of SYNC IN.

SYNC IN PORT		
Pin Number	**Name**	**Connector**
1	No Connection	
2	No Connection	
3	No Connection	
4	A[1]	
5	B[2]	
6	GND[3]	
7	No Connection	
8	No Connection	

1 A is a differential output in the synchronization circuitry. For cabling purposes, A of SYNC OUT connects to A of SYNC IN. A and B are opposite in polarity.
2 B is a differential output in the synchronization circuitry. For cabling purposes, B of SYNC OUT connects to B of SYNC IN.
3 For cabling purposes, GND of SYNC OUT connects to GND of SYNC IN.

Note The SYNC OUT port on the last **SLAVE** must have 120Ω connected between pins A and B when in use. When an HP 8923B is not used in the master/slave configuration, it **MUST** be configured as a **MASTER**.

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HP 8923B Configuration (Master)

The HP 8923B that you are using as the **MASTER** must be configured first and the connections to the slaves made after this configuration. To configure the master:

- Press (Call Setup).
- Select `Portable` as part to test.
- Access the configuration screen by pressing: <list>
  - (SHIFT) then (LOCAL).
- Select `Multiframe Sync` until `Master` is underlined.

The **MASTER** HP 8923B is now configured.

HP 8923B Configuration (Slave)

Make a connection from the **MASTER** SYNC OUT to **SLAVE** SYNC IN.

Note

The Master must be powered ON; configured to test PP's and be set to {{Master}} before slaves can synchronize to it by proceeding from the OFF to IDLE state.

- Power up the **SLAVE** unit.
- Press (CALL SETUP).
- Select `Portable` as part to test.
- Access the configuration screen by pressing:
  - (SHIFT) then (LOCAL).
- Select `Multiframe Sync` until `Slave` is underlined.

If you need to connect an additional **SLAVE**, make a connection from the final **SLAVE** SYNC OUT to the additional **SLAVE** SYNC IN.

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2.7.6 Handset Connection

A handset, which has an **ELECTRET** microphone, can be connected to the handset port, Figure 2-10, to test audio continuity. This is explained further in Chapter 4, "Making Measurements".

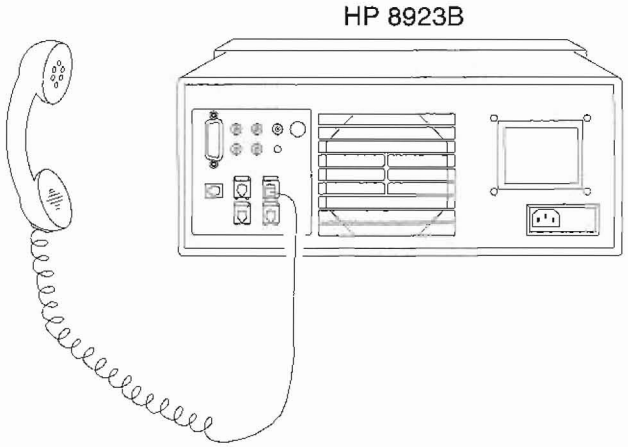
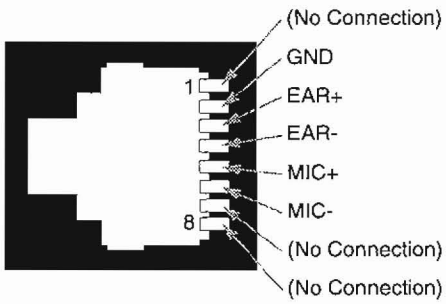


Figure 2-10. Handset Connection

The interface is shown below:

HANDSET PORT		
Pin Number	**Name**	**Connector**
1	No Connection	
2	GND	
3	EAR +	
4	EAR -	
5	MIC +	
6	MIC -	
7	No Connection	
8	No Connection	

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3

Establishing a Communication Link

What You'll Learn In This Chapter

This chapter describes how to:

- Setup the HP 8923B to make measurements on DECT parts with the help of a setup flowchart.
- Understand the MAC layer test messages supported by the HP 8923B.

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Introduction

If you wish to make measurements on DECT Fixed or Portable Parts, use the flowchart below to help locate the section of this manual most appropriate for setting up the HP 8923B.
There are two possible test scenarios:

1. MAC Layer test messages *are* supported by the EUT.

1. MAC Layer test messages *are not* supported by the EUT.

Follow the appropriate path through the flowchart to enable you to setup the HP 8923B before starting to make measurements.

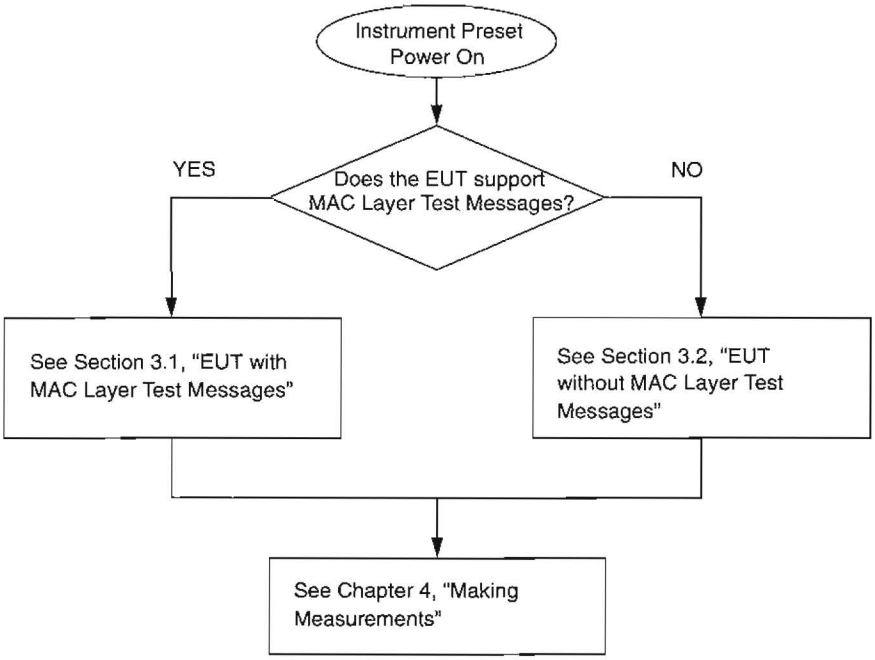
Instrument Preset
Power On
Does the EUT support MAC Layer Test Messages?
YES
NO
See Section 3.1, "EUT with MAC Layer Test Messages"
See Section 3.2, "EUT without MAC Layer Test Messages"
See Chapter 4, "Making Measurements"

Figure 2-11. Flowchart For Choosing Configuration

Note For more information on MAC Layer Test Messages, see Chapter 3.3, "MAC Layer Test Messages".

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3.1

EUT with MAC Layer Test Messages

What you will Learn in this Section

- Learn to set up a communication link between the HP 8923B and a PP or FP.
- Learn to terminate the communication link between the HP 8923B and a PP or FP.
- See examples of test scenarios where MAC Layer test messages are supported by the EUT.

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Introduction

During the call setup, you will be required to put the EUT into Test Standby Mode. The method of placing the EUT into Test Standby Mode is manufacturer specific. Placing the EUT in Test standby mode allows it to act upon MAC Layer test messages.

The status of the communication link is displayed in the top right hand corner of the screen. The possible changes in the status of the communication link during testing on PPs and FPs is shown in Figure 3.1-3 and Figure 3.1-2 respectively.

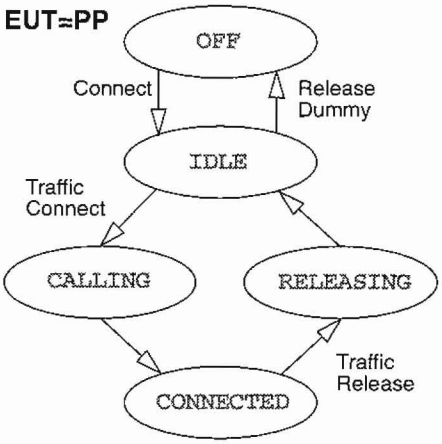

Figure 3.1-3. Communication Link Status Changes (PP)

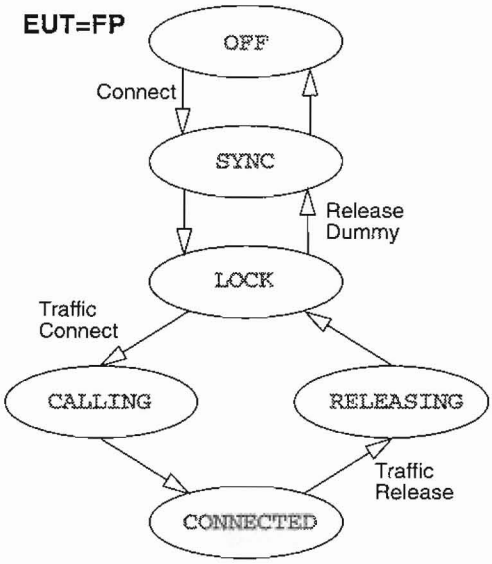

Figure 3.1-2. Communication Link Status Changes (FP)

Note The RF parameters of the HP 8923B should be setup before establishing a communication link with the EUT.

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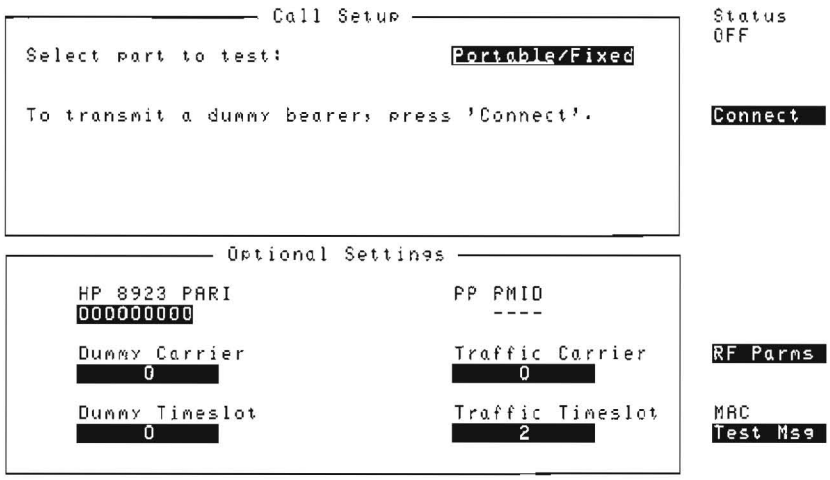
Establishing a Communication Link To A PP

The current Status of the communication link is indicated in the top right hand corner of the screen.

Status
OFF

1. Press (CALL SETUP) on the front panel. The following screen is displayed.The Status indicator is set to OFF.



2. Highlight Select part to test field. Select Portable/Fixed until Portable is underlined.
3. Enter the Primary Access Rights Identity (PARI) of the EUT. This is optional, as some PP's do not require the PARI to be entered.
4. Force your PP into Test Standby mode.

Status
IDLE

5. Select Connect . The HP 8923B's status changes to IDLE and the following screen is displayed. Check the EUT has successfully synchro-

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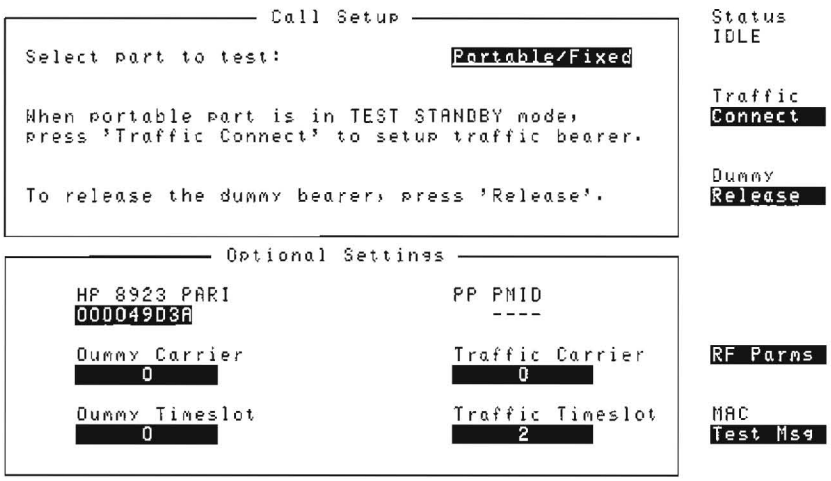
nized to the dummy bearer.

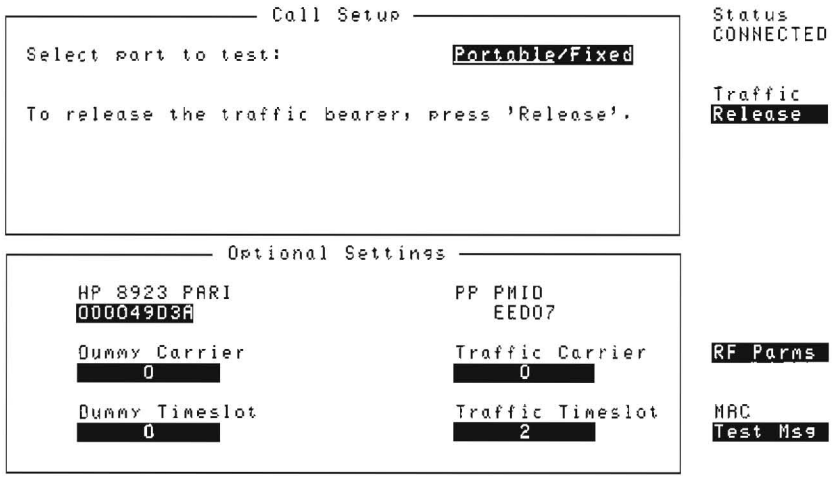


Status
CALLING

6. Select `Traffic Connect` . The status changes to `CALLING` until the traffic bearer has been established.

Status
CONNECTED

7. If the connection is successfully made, the `status` changes to `CONNECTED` and the following screen is displayed.



The PMID of the Portable Part is displayed in the `PP PMID` field.

Note

The HP 8923B is now ready to make measurements on the traffic bearer. You may proceed to Chapter 4, "Making Measurements" or terminate the communication link by following the termination procedure in this section.

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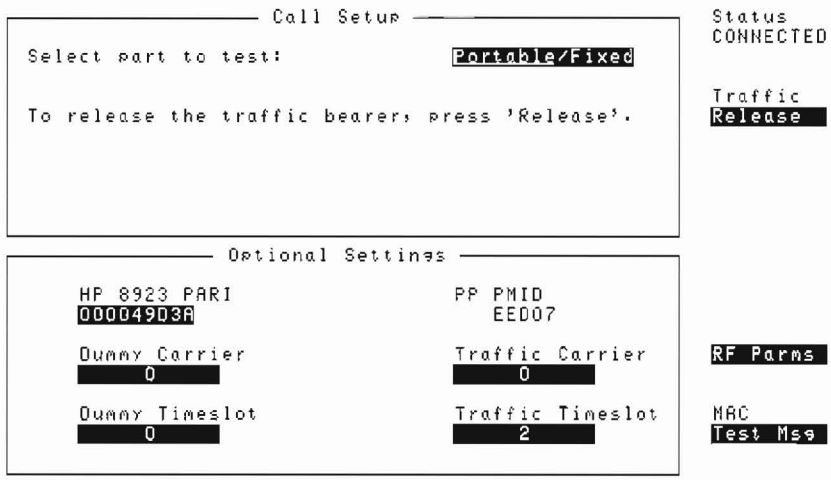
Terminating a Communication Link To A PP

The current Status of the communication link is indicated in the top right hand corner of the screen.

Status
CONNECTED

1. Press (CALL SETUP) on the front panel. The following screen is displayed. The Status indicator is set to CONNECTED.

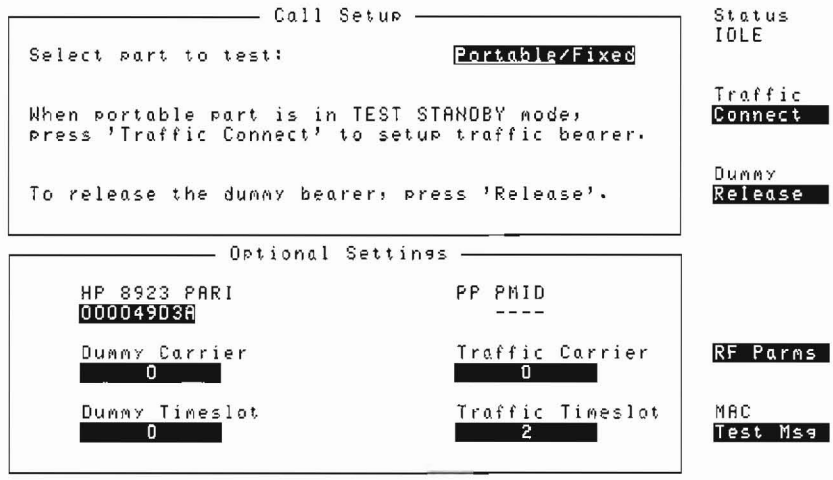


Status
RELEASING

2. Select Traffic Release. The status changes to RELEASING until the traffic bearer has been released.

Status
IDLE

3. If the connection is released successfully the status changes to IDLE and the following screen is displayed.



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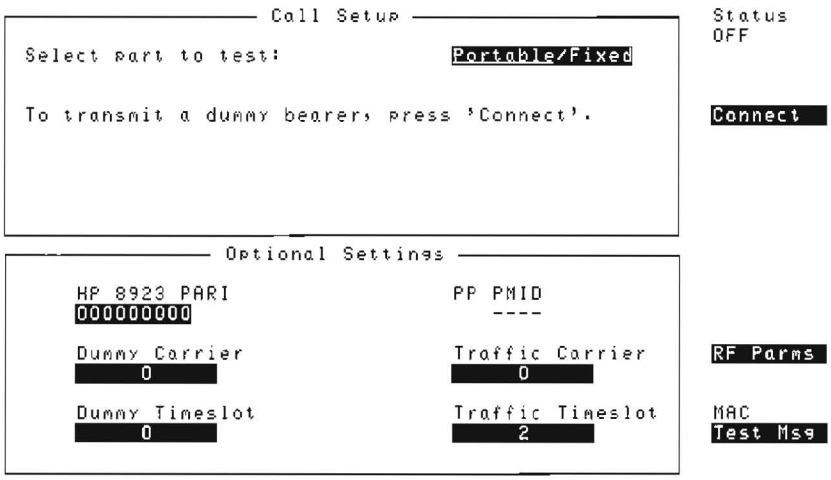
Status
OFF

4. Select Dummy Release. The status changes to OFF and the following screen is displayed.



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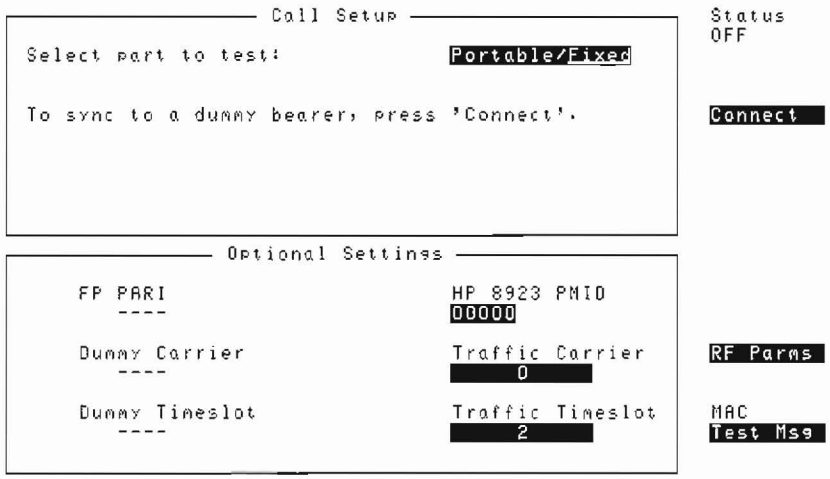
Establishing a Communication Link To An FP

The current Status of the communication link is indicated in the top right hand corner of the screen.

Status OFF

1. Press (CALL SETUP) on the front panel. The following screen is displayed. The Status indicator is set to OFF.



2. Highlight Select part to test field. Select Portable/Fixed until Fixed is underlined.
3. Enter the Portable Part Identity (PMID). This is optional, as some FP's do not require the PMID to be entered.
4. Force your FP into Test Standby mode.

Status
SYNC

5. Select Connect . The Status is set to SYNC until the HP 8923B locks to the dummy bearer from the EUT.

Status
LOCK

6. When this has been successfully completed, the status changes to

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